

Amendments to the Claims:

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method of manufacturing a semiconductor device comprising:

a preparation process step of supplying and adsorbing a substance for restricting adhesion of a material for forming a tungsten film or a tungsten compound film and for restricting formation of nuclei for growing a metal the tungsten film or a metal the tungsten compound film onto a surface of a process target substrate; and

a film forming step of forming a metal the tungsten film or a metal the tungsten compound film whose surface has bumps on said substrate by supplying [[a]] said material for forming of said metal tungsten film or said metal tungsten compound film onto to the surface of said substrate after said preparation process step, while restricting adhesion of said material to the substrate by said substance adsorbed on the surface.

2. (Currently Amended) The method of manufacturing a semiconductor device according to claim 1, wherein:

~~said preparation process step comprises a step of supplying a substance for restricting adhesion of NH₃ onto the surface of said substrate; and~~

~~said film forming step comprises a step of forming a tungsten nitride film whose surface has bumps on said substrate by supplying WF₆ and NH₃ onto the surface of said substrate.~~

3. (Currently Amended) The method of manufacturing a semiconductor device according to claim 2, wherein

~~said substance comprises preparation process step comprises a step of restricting adhesion of NH₃ onto the surface of said substrate by supplying a halogen containing substance element onto the surface of said substrate.~~

4. (Currently Amended) The method of manufacturing a semiconductor device according to claim 3, wherein

~~said halogen containing substance comprises preparation process step comprises a step of supplying ClF₃ or WF₆ onto the surface of said substrate as said halogen element.~~

5. (Withdrawn) The method of manufacturing a semiconductor device according to claim 2, wherein

~~said preparation process step comprises a step of restricting adhesion of NH₃ onto the surface of said substrate by bonding groups made of C and H onto the surface of said substrate.~~

6. (Withdrawn) The method of manufacturing a semiconductor device according to claim 5, wherein

said preparation process step comprises a step of coating at least one of HMDS ((CH₃)₃SiNHSi(CH₃)₃), alcohol, and ketone onto the surface of said substrate in order to bond groups made of C and H onto the surface of said substrate.

7. (Withdrawn) The method of manufacturing a semiconductor device according to claim 5, wherein

said preparation process step comprises a step of exposing the surface of said substrate to vapor of at least one of HMDS, alcohol, and ketone in order to bond groups made of C and H onto the surface of said substrate.

8. (Withdrawn) The method of manufacturing a semiconductor device according to claim 6, wherein

said preparation process step comprises a step of using C₂H₅OH as the alcohol.

9. (Withdrawn) The method of manufacturing a semiconductor device according to claim 7, wherein

said preparation process step comprises a step of using C₂H₅OH as the alcohol.

10. (Withdrawn) The method of manufacturing a semiconductor device according to claim 6, wherein

said preparation process step comprises a step of using CH₃COCH₃ as the ketone.

11. (Withdrawn) The method of manufacturing a semiconductor device according to claim 7, wherein

said preparation process step comprises a step of using CH₃COCH₃ as the ketone.

12. (Currently Amended) A method of manufacturing a semiconductor device comprising:

a preparation process step of supplying and adhering a halogen containing substance element onto a surface of a substrate, the halogen containing substance restricting adhesion of a material for forming a tungsten film or a tungsten compound film and restricting formation of nuclei for growing a tungsten film or tungsten compound film; and

a film forming step of forming a metal tungsten film or a metal tungsten compound film whose surface has bumps on said substrate by supplying a material of said metal tungsten film or said metal tungsten compound film onto to the surface of said substrate after said preparation process step, while restricting adhesion of said material to the substrate by said halogen containing substance.

13. (Withdrawn) A method of manufacturing a semiconductor device comprising:

a preparation process step of bonding groups made of C and H onto a surface of a substrate; and

~~a film forming step~~ of forming a metal film or a metal compound film whose surface has bumps on said substrate by supplying a material of said metal film or said metal compound film onto the surface of said substrate after said preparation process step.

14. (Currently Amended) The method of manufacturing a semiconductor device according to claim 1, wherein

~~said film forming step controls a shape of the bumps on said metal film or said metal compound film formed in said film forming step the adhesion of said material for forming the tungsten film or the tungsten compound film is controlled~~ by controlling a time in which a preparation process is performed.

15. (Currently Amended) The method of manufacturing a semiconductor device according to claim 12, wherein

~~said film forming step controls a shape of the bumps on said metal film or said metal compound film formed in said film forming step the adhesion of said material for forming the tungsten film or the tungsten compound film is controlled~~ by controlling a time in which a preparation process is performed.

16. (Withdrawn) The method of manufacturing a semiconductor device according to claim 13, wherein

~~said film forming step controls a shape of the bumps on said metal film or said metal compound film formed in said film forming step by controlling a time in which a preparation process is performed.~~

17 – 25 (Cancelled).

26. (Currently Amended) The method of manufacturing a semiconductor device according to claim 1, wherein:

~~said preparation process step is a step of supplying the substance for restricting formation of nuclei onto the surface of said substrate has a that is substantially plane planar surface. ; and~~

~~— said film forming step is a step of forming a metal film or a metal compound film which has bumps on said substrate.~~

27. (Currently Amended) The method of manufacturing a semiconductor device according to claim 1, wherein:

~~said preparation process step is a step of supplying the substance for restricting formation of nuclei onto the surface of said substrate that has a predetermined roughness; and~~

~~said film forming step is a step of comprises forming on said substrate — a metal tungsten film or a metal tungsten compound film which has bumps that are rougher than the surface of said substrate.~~

28. (Currently Amended) The method of manufacturing a semiconductor device according to claim 1, further comprising

~~a step of forming a conductive film which faces said metal tungsten film or said metal tungsten compound film via an insulation material, wherein said method forms capacitance is for forming a capacitor.~~

29. (Currently Amended) The method of manufacturing a semiconductor device according to claim 12, wherein:

~~said preparation process step is a step of supplying the substance for restricting formation of nuclei onto the surface of said substrate that is substantially plane planar, ; and~~
~~— said film forming step is a step of forming a metal film or a metal compound film which has bumps on said substrate.~~

30. (Currently Amended) The method of manufacturing a semiconductor device according to claim 12, wherein:

~~said preparation process step is a step of supplying the substance for restricting formation of nuclei onto the surface of said substrate that has a predetermined roughness; and~~

~~said film forming step is a step of comprises forming on said substrate — a metal tungsten film or a metal tungsten compound film which has bumps that are rougher than the surface of said substrate.~~

31. (Currently Amended) The method of manufacturing a semiconductor device according to claim 12, further comprising

~~a step of forming a conductive film which faces said metal tungsten film or said metal tungsten compound film via an insulation material,~~
~~wherein said method forms capacitance is for forming a capacitor.~~

32. (Withdrawn) The method of manufacturing a semiconductor device according to claim 13, wherein:

said preparation process ~~step is a step of~~ comprises supplying the substance for restricting formation of nuclei onto the surface of said substrate that is substantially plane; and

said film forming ~~step is a step of~~ comprises forming a metal film or a metal compound film which has bumps on said substrate.

33. (Withdrawn) The method of manufacturing a semiconductor device according to claim 13, wherein:

said preparation process ~~step is a step of~~ comprises supplying the substance for restricting formation of nuclei onto the surface of said substrate that has predetermined roughness; and

said film forming ~~step is a step of~~ comprises forming on said substrate, a metal film or a metal compound film which has bumps that are rougher than the surface of said substrate.

34. (Withdrawn) The method of manufacturing a semiconductor device according to claim 13, further comprising

~~a step of~~ forming a conductive film which faces said metal film or said metal compound film via an insulation material,

wherein said method ~~forms capacitance is for forming a capacitor.~~

35 – 37. (Canceled)

38. (New) The method of manufacturing a semiconductor device according to claim 2, wherein:

said substance for restricting formation of nuclei restricts nucleation of NH₃.

39. (New) The method of manufacturing a semiconductor device according to claim 1, wherein:

a surface of the tungsten film or the tungsten compound film formed by said film forming step has bumps.

40. (New) The method of manufacturing a semiconductor device according to claim 12, wherein:

a surface of the tungsten film or the tungsten compound film formed by said film forming step has bumps.

41. (New) The method of manufacturing a semiconductor device according to claim 12, wherein:

said halogen containing substance for restricting adhesion restricts adhesion of NH₃.